Concordia
UNIVERSITY

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Engineering & Computer Science BITS

NSERC Grants by Department

Centre for Building Studies
$321,600
15 grants

Civil Engineering
$192,400
10 grants

Computer Science
$484,400
23 grants

Electrical & Computer Engineering
$533,022
26 grants

Mechanical Engineering
$652,259
26 grants

NSERC GRANTS AWARDED

In April, the National Science and Engineering Research Council (NSERC) released its grants for the 1994-95 academic year. This year NSERC's budget for major grants was $258,568,000. The Faculty of Engineering and Computer Science received 100 grants totalling $2,183,681. (Four decisions were still pending at the time of publication and have not been added to the totals.) In addition, the Faculty received 11 NSERC equipment grants ($387,930) and one infrastructure grant ($18,000).

In the week of April 25, 1994, the Office of Research Services will be issuing a newsletter detailing all of the NSERC grants received by Concordia researchers

As we move closer to the year 2000, watch for the Faculty's signature:

KNOWLEDGE ... BRIDGING THE MILLENNIA

SCIENCE EXPLORATION WEEK

During the week of April 18 to 22, 75 Montreal area high school students took part in Concordia's Science Exploration Week. They visited many of the University's pure and applied science departments to find out more about what to expect if they decide to pursue studies in those particular areas. On Monday afternoon, they were greeted in Computer Science by Drs. Vangalur Alagar, Bill Atwood and Peter Grogono. Then each of the students visited three of eight interactive labs, one of which involved a programming competition organised by Dr. Clement Lam. On Thursday morning, they visited the engineering departments. Dr. Richard Guy (CBS) started the day with a talk about engineers as problem solvers In order to give the students a feel for real engineering, the departments organised problems for the students to solve over a two hour period. At the end of the period each group gave a short presentation to the others about its problem and how it was solved. The week ended on Friday with a lunch at the Loyola Faculty Club.

More than 30 people within Engineering and Computer Science were involved in Science Exploration week. Many thanks to all of them.

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EVENTS OF NOTE

* Several members of the Faculty of Engineering and Computer Science played an active role in the fifth annual Future of Concordia conference on March 25. Prof. Ching Suen (Associate Dean - Research) represented the Faculty at the opening plenary session. Prof. Peter Grogono (Computer Science) was part of the panel in the E-mail/Internet workshop. Profs. Tien Bui (Associate Vice-Rector Academic) and Jerry Hayes (Electrical and computer Engineering) helped lead the discussion about university research. The history of ECA's split from CUSA, and its role in the reform of student government were explained by Stanley Yee (President, ECA). And, Prof. Les Landesberger (Electrical & Computer) spoke to the audience about teaching undergraduates about what to expect when they leave Concordia to enter the real world.

* In late March, Prof. Corinne Jetté (Communications and Equity Affairs) met with members of the Women in Engineering Advisory Committee of the Association of Professional Engineers of Manitoba. During the meeting, they discussed recruiting strategies aimed at attracting young women to careers in engineering. While in Winnepeg Prof. Jetté also spoke at a seminar held in cooperation with the University of Manitoba's Faculty of Engineering.

* The Canadian Society for Mechanical Engineering (CSME) will hold its annual Forum from June 27-29 at McGill University, in conjunction with the 12th Symposium on Engineering Applications of Mechanics. The Forum attracts leading international researchers and practicing engineers for discussions on a wide range of topics including the environment, robotics and emerging technologies. More information about the CSME Forum can be obtained in Mechanical Engineering (H 549) or by calling 398-3770.

* The Engineering and Computer Science Association (ECA) will host the 11th annual Québec Engineering Competition (QEC) next winter. Teams from all eight engineering faculties across the province will attend QEC in hopes of winning at place to compete at the Canadian Engineering Competition to be held next spring at the University of Alberta in Edmonton.

* La Faculté de Génie et d'Informatique, avec la coopération de l'Ordre des ingénieurs du Québec, a mise sur pied un projet qui vise à augmenter l'intégration des Autochtones à la profession d'ingénierie. Le premier programme de ce projet aura lieu au mois du juillet 1994- quarante étudiant(e)s Autochtones assisteront au camp d'été scientifique.

SECRETARY'S WEEK

April 25 to 29 was Secretary's Week. The Faculty would like to thank all of the following people for their dedication and contributions to its mission.

Centre for Building Studies
Sheila Anderson
Donna Caputo
Nella Fioretino
Rosie Meldonian
Beatrice Simone

Civil Engineering
Angelina Fondaco
Manon Painchaud
Carol Plathan

Computer Science
Terry Czernienko
Angie de Benedictus
Patricia Kierans
Donna McQuillan
Halina Monkiewicz
Stephanie Roberts

Electrical & Computer Engineering
Kim Adams
Maria Buffone
Carleen DeVan
Pam Fox
Marlean Martin
Irene Mazis
Susan Meehan
Bonnie Weppler

Mechancial Engineering
Jayne Classen
Zsuzsanna Major
Sophie Merineau
Eleanor Morris
Venkat Rajan
Carol Williams
Arlene Zimmerman

Office of the Dean
Agi Csordas
Sheila De Souza
Barbara Fabian
Ann Franklin
Lorena Matzrelli
Hélène Rowe
Tazeta Taye
Jane Venettacci

FACULTY FACES

Sabine Bergler - Department of Computer Science

Faculty Faces is a regular feature of *Bits*, focusing on personalities within Engineering and Computer Science.

As an undergraduate at the University of Stuttgart in Germany Sabine Bergler took part in an exchange programme to the University of Massachusetts at Amherst. There she found a project which brought together her two interests - computer science and linguistics. It involved the development of a legal expert system which would respond to queries in English. "There was no comparable project in Stuttgart. At the time, the University focussed on the theoretical. When I returned to Germany I applied to do my Ph. D. at Amherst." She returned to the United States to find the legal expert system project falling apart.

Amherst was a gentle introduction to North American culture for Dr. Bergler, "It is a small town, almost rural. There are still hippies living in Amherst. Everyone was very friendly. That made the transition easier than if I had moved directly to Boston." Eventually, she did move to Boston, following her thesis supervisor to Brandeis University, in order to finish her Ph.D. In May 1992, she graduated from Brandeis and moved to Concordia. That summer was spent preparing for her fall courses, and getting accustomed to Concordia. "The escalators," she points out, "were a nice touch".

As a graduate student, Dr. Bergler had spent some time lecturing, but she had never taught a full course before coming to Concordia. "It's a lot of work, a lot of preparation. But I learn from my experiences," she explains. "I discovered that the text I had chosen wasn't as good as I had originally thought it was. This year I used a different text , and I have a better appreciation of the students' perspective of the course." This year Dr. Bergler also taught a graduate special topic course on text analysis, "It was very rewarding, "she says, "It was the first time I could talk about my research to my students."

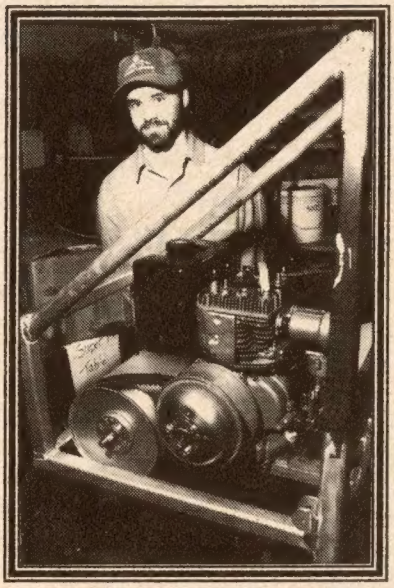
Her current research is an extension of her thesis work. Dr. Bergler and her team of five are working on analysis of newspaper articles. At the moment they are in the first stages of the project, developing a sophisticated lexicon for the computer. They will then begin to teach the computer to analyse for structure: first words, then sentences and paragraphs and ultimately whole texts. "There is a demand for work in this area," Dr. Bergler explains, "Because our society is so inundated with information we must find new ways to classify and index it. When you have two hundred television channels available, offering hundreds of programmes in any time slot, a TV guide is no longer an efficient tool for finding your favourite show." The use of automatically indexed newspaper articles ranges from automatic updating of Wall Street databases to comparative analysis of reports from different newspapers about the same incident. Because of its bilingual nature Montreal has many different groups working on various aspects of computational linguistics from grammar checkers to machine translation.

Dr. Bergler is also working on a related project with Dr. Nancy Belmore in TESL (Teaching English as a Second Language). It is the Canadian part of the International Corpora of English (ICE), the goal of which is to create an international corpus of the English language as a basis for research in linguistics. Drs. Bergler and Belmore will continue work begun at Queen's University to collect 1 million words to build the base of the corpus. They have two years of funding from the Seagram Fund for this phase of the project. Once it is completed the Corpus will be used for research and to make computer analysis of texts and spoken language robust - that is, enable a computer to account for regional variations in the use of language. It is a project which is unique in Canada.

Dr. Bergler is hoping that her research in computational linguistics will attract students to Concordia. "Linguistics and computers aren't necessarily connected in the minds of students. I'm always on the lookout for students with the inclination to connect them."

COURSE TEACHES ENTREPRENEURSHIP

ENGR 481 is not a course for the faint-hearted. According to student Chris Latchem, " It's a great course. Only it doesn't take the three to four hours a week they tell you about at the beginning of the class, it sort of expands to fill your free time." ENGR 481 is a project course taught by Prof. Tom Sankar which is designed to teach final year undergraduates about entrepreneurship. As Prof. Sankar points out to his class, "Engineering is not just about design and construction, but also about marketing and project management."



Mike Petche showing off the reworked drive of the Mini-Baja.

Each student in the course chooses a new product to develop, an existing product to improve or an industrial process to optimize as their project. Often, the choice is something which extends to the students interests outside the classroom. Mike Petche, a member of the Society of Automotive Engineers (SAE), designed a new drive train for the society's Mini-Baja vehicle. "I had to do the work anyway," he says, "I thought, I may as well get credit for it." Chris Latchem and John Charlton, both biking enthusiasts, oriented their projects towards that interest. Latchem designed a composite materials frame for a tandem bike to try and minimize the usual wobble between the two riders. Charlton has developed a linear pedal system for a bike, in order to use the driving energy input by the rider more efficiently. One student, Anthony Tsao, wanted to learn to programme in "C". His project involved programming a robotic arm to drop a peg into a hole without jamming or wedging. Tim Finnegan worked on a 6 degrees-of-freedom force transducer to be used in the wrist joint of a robotic arm. And, Fredric Guigand, an exchange student from France, developed an elevator mechanism for the type of step stools used in the library. If it works, even short people should be able to reach books on the top shelves.

At the same time they are working on their projects, the students attend lectures given by Prof. Sankar and one of his grad students, Arun Jaura. The lectures, on topics such as entrepreneurship, marketing and project management, are meant to complement the hands-on aspect of the course. Throughout the year the class meets to discuss how the projects are progressing and to present their work to date. "When dealing with clients," Prof. Sankar tells them, "you must keep them informed as to your progress."

At the end of the year students have a good idea what it takes to develop their own products. They also have a good idea about how long the development takes: the six projects undertaken this year were at various stages of completion by the time their final presentation was due. But despite the hard work, and the sleepless nights, the course received rave reviews from the students. "I'd recommend it," said Latchem.

Reduce, Reuse, Recycle, Recover...

Please do your part, recycle this copy of Bits.

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